Operating Instructions

Two component proportioning valve SKW

SM3-640

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Edition: 04/97

These operating instructions are for:

Serial number: _____

Built in: _____

Date of delivery: _____

Number of delivery: _____

Date of commissioning: _____

Location: _____

Group of machines: _____

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1. Safety instructions

These safety instructions apply to all persons within the range of action of the equipment.

Please inform all persons within the range of action of the equipment of the direct and indirect hazards connected with the equipment.

These operating instructions are to be used by all persons assigned activities connected with the equipment.

Knowledge of the English language is prerequisite.

Ensure in each case that the operating personnel are familiar with the operating instructions and the function of the equipment.

1.1. Warnings and symbols

The following warnings and symbols are used in these operating instructions:

This symbol indicates danger to life! Fatal or serious injury is possible if the corresponding instructions, regulations or warnings are not observed.

This symbol indicates that serious injury is possible if the corresponding instructions, regulations or warnings are not observed.

This symbol indicates that extensive damage to equipment is possible if the corresponding instructions, regulations or warnings are not observed.

This symbol indicates information important for becoming familiar with the equipment, i.e. technical correlations.

This symbol indicates that a technical term is explained at this point.

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1.2. Explanations and information

Various terms and designations are used frequently in these operating instructions to ensure clarity. Therefore please note that the terms used in the text stand for the corresponding explanations listed below.

- Equipment
  "Equipment" can mean an individual unit, a machine or an installation.

- Operating personnel
  The "operating personnel" are persons operating the equipment on their own responsibility or according to instructions (minimum age: 16).

- Operator
  The "operator" of the equipment (production manager, foreman, etc.) is the person responsible for all production sequences. The operator instructs the operating personnel of what is to be done.

- Operating instructions
  The "plant operating instructions" describe the interaction of the equipment, production sequences or methods. The plant operating instructions must be compiled by the operator of the equipment.

- Equipment foreman
  When several operating personnel work on one machine, the "equipment foreman" coordinates the sequences. The equipment foreman must be appointed by the operator.

- Trained personnel
  "Trained personnel" are persons who, due to their training, are authorized to carry out the required work in good practice.

1.3. For your safety

- The operating personnel of this equipment must be at least 16 years old.

- Please read these operating instructions carefully before taking into operation for the first time. All points are to be observed. Contact us should questions arise. This avoids injury and damage to equipment!

- These operating instructions must be kept available at all times at the place of operation of the equipment.
  Improper operation results in danger of accidents!

- Please note that, for reasons of clarity, not all conceivable cases regarding operation or maintenance of the equipment can be covered in these operating instructions.

- Please observe all safety instructions and warnings on the equipment.
  This avoids injury and damage to equipment!

- All work on the equipment is to be carried out by persons whose qualifications are specified in the pertaining chapters of the operating instructions.
  Improper operation results in danger of accidents!

- The proper working clothes are to be worn during any work on the equipment.
  This avoids injury!

- Compare the connected loads with those of the mains supply.
  Danger of injury through electrical shock!

- When using lifting gear, please observe the pertaining regulations.
  Caution: Danger of accidents!

- Please note that all installation, start-up and maintenance procedures are to be carried out by qualified, trained personnel only.
  Improper operation results in danger of accidents!

- The local regulations and requirements pertaining to the equipment must be observed.

- The “5 safety rules” as provided in DIN VDE 0105, Section 1, must be observed for all work carried out on the equipment.

- Disconnect electrical components from the mains supply before work is carried out on these components.
  Caution: Danger to life through electrical shock!

- Do not modify, add other equipment or change the design of the equipment without the approval of the manufacturer.
  Caution: Danger of accidents!

- Compile detailed plant operating instructions based on the supplied operating instructions for the sequence of procedures to be carried out on this equipment.
  Improper operation results in danger of accidents!

- Appoint an equipment foreman to be responsible for the equipment.

- Ensure that the operating personnel are thorough training in the operation of the equipment.
  Improper operation results in danger of accidents!

- When the main switch is switched off for reasons pertaining to safety, it must be secured against unauthorized activation.
  Caution: Danger of accidents!

- Before starting maintenance work, appoint a supervisor.

- Inform the responsible personnel before maintenance work on the system is started.
  Caution: Danger of accidents!

- Disconnect the equipment from mains supply before starting maintenance procedures to ensure that it cannot be switched on unintentionally.
  Caution: Danger of accidents!

- Repair work may be carried out by trained personnel only.
  Caution: Danger of accidents!

- Never operate the equipment when partially dismantled.
  Caution! Limbs may be caught in machinery; danger of electrical shock!

- In case of malfunction, shut down the equipment immediately. Have malfunctions corrected immediately.
  Caution: Danger of accidents!

- The equipment is intended only for conveying granulated plastics and regrinds. Other use of the equipment is contrary to its specifications.

- This equipment is not suitable for food processing.

- Please observe that sound levels exceeding 85 dB(A) may lead to health problems after prolonged exposure. Use suitable ear protection.
  This prevents ear damage!

- Attachments not supplied by Sterling must be manufactured in accordance with safety instruction EN 294.
  Caution: Danger of accidents!

- Check all pipes, hoses and screwed connections for leaks and damage on a regular basis. Correct such damages immediately.
  Caution: Danger of accidents!

- Depressurize all compressed air piping before maintenance work.
  Danger! Limbs may be caught in machinery!

- Never operate the equipment without elbows.
  Danger! Limbs may be caught in machinery!

- The equipment may only be operated when all appertaining components are connected properly and comply with applicable regulations.
- The equipment may only be operated in conjunction with a conveyor unit.
- Observe the safety instructions for connected equipment.

1.4. For the operating safety of the equipment

- Never change settings if the consequences are not precisely known.
- Use only original Sterlingspare parts.
- Observe the maintenance instructions.
- Keep record of all maintenance and repair procedures.
- Please note that electronic components may be damaged by static discharge.
- Check all electrical connections for secure fit before the equipment is taken into operation and at regular intervals.
- Never adjust sensors without exact knowledge of their function.
- Please note that the maximum ambient temperature must not exceed 45 °C (113°F).
- Align the suction tubes of the individual components equally.
- Please note that the set conveying ratio determines the conveying time.
- Please note that compressed air supply is required for the operation of the SKW.
- Never set a higher operating pressure than 6 bar (87.02 PSI) for the SKW (system overpressure).
- Check whether the regrind is connected to the left-hand intake port (1) of the SKW.
- Install VA-steel pipe bends when conveying abrasive material (SKW 40, SKW 50).

- Please note that SKW 65 may not be used for conveying abrasive materials.
- Please note that the SKW can only be used in conjunction with a conveyor unit.
- Please observe the operating instructions of the connected conveyance control system.

2. Installation instructions

These installation instructions are intended for persons with skills in electrical and mechanical areas due to their training, experience and received instructions.

Personnel using these installation instructions must be instructed in the regulations for the prevention of accidents, the operating conditions and safety regulations and their implementation.

Ensure in each case that the personnel are informed.

The installation instructions provided in the corresponding operating instructions apply for all connected equipment.

Observe safety regulations with regard to lifting gear handling

All installation work must be carried out with the equipment disconnected from electrical power and compressed air supply.

☹

For installation work taking place at heights of over approx.1829mm (6 ft), use only ladders or similar equipment and working platforms intended for this purpose. At greater heights, the proper equipment for protection against falling must be worn.

Use only suitable lifting gear which is in proper working order and load suspension devices with sufficient carrying capacity. Do not stand or work under suspended loads!

Use suitable workshop equipment.

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Install the equipment such that all parts are easily accessible; this facilitates maintenance and repair work.

2.1. Installation

Installation is possible in any position. A mounting bracket is already attached.

The control unit must be accessible at any time

Install VA-steel pipe bends (SKW 40, SKW 50) when conveying abrasive materials.

SKW 65 may not be used for conveying abrasive materials.

Install the SKW in such manner that differences in conveying distances for the two components are avoided.

Please note that the maximum ambient temperature near the SKW must not exceed 45 °C (113°F).

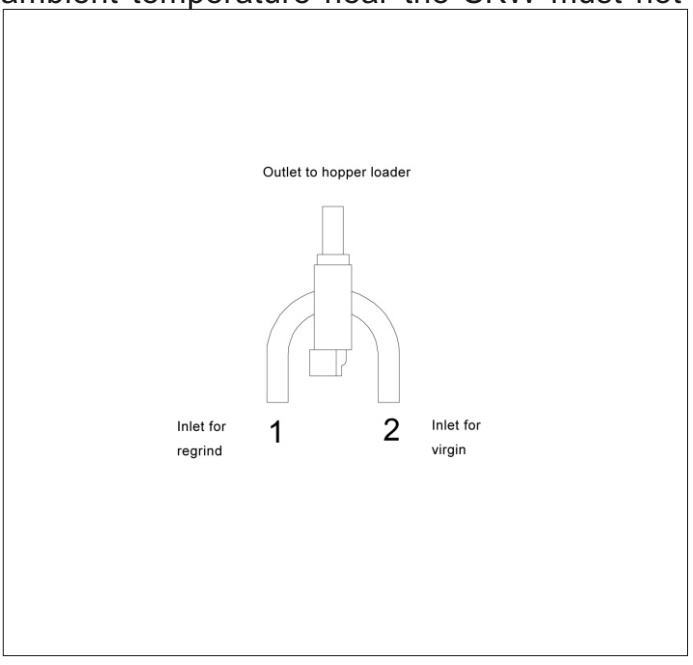
Remove the plugs from the pipe bends.

Install the regrind line at intake port 2 of the SKW.

Install the virgin material line at intake port 1 of the SKW.

Install the feed line to the hopper loader at the outlet port of the SKW.

Align both suction pipes equally in order to avoid inaccurate percentage preselection results.



Assembly SKW

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2.2. Electrical connection

2.2.1. Connection to a single conveyor unit CSE 2/CSE 5

Electrical connections are to be made by trained personnel only.

Observe the regulations of your local Electricity Board.

All work is to be carried out with the equipment disconnected from electric power and compressed air supply.

The power consumption value of the SKW is approx. 15 Watts.

The operating voltage of the SKW is 100 V/60 Hz.
Special voltage on request.

Lay a cable (min. 3 x 1 mm) from the single conveyor unit to the SKW.

Install the supplied plugs.

Install the plug of the SKW at the plug connector of the single conveyor control unit.

Observe the operating instructions of the single conveyor unit.

2.2.2. Connection to a vacuum receiver unit SSK-05 1, 3, 5, & 30

Electrical connections are to be made by trained personnel only.

Observe the regulations of your local Electricity Board.

All work is to be carried out with the equipment disconnected from electric power and compressed air supply.

The power consumption value of the SKW is approx. 15 Watts.

The operating voltage of the SKW is 24 V.

Lay a cable (min. 3 x 1 mm) from the single conveyor unit to the SKW.

Install the supplied plugs.

Install the plug of the SKW at the plug connector of the single conveyor control unit.

Observe the operating instructions of the vacuum receiver unit.

2.2.3. Connection to a conveying system controller

The electrical connection to a conveying system controller may only be made by skilled personnel authorized by Sterling.

Other persons are not permitted to install electrical connections.

2.3. Compressed air supply

For actuating the piston in the SKW a compressed air supply connection (1/4 inch) is required.

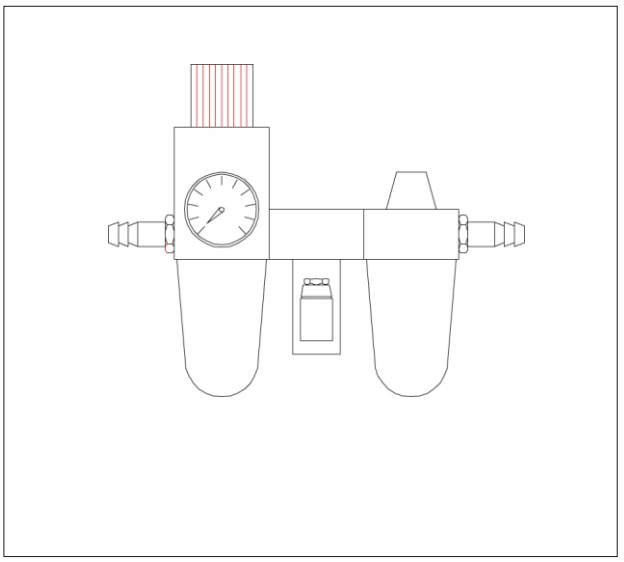
Check compressed air piping for correct installation and assembly.

Check fittings, length and quality of the hose connections for agreement with requirements.

The operating pressure of the SKW is 5-6 bar (72.52-87.02 PSI) (system overpressure).

Check the compressed air supplied by the plant's supply network.

Adjust compressed air pressure to 5-6 bar(72.52-87.02 PSI) (system overpressure).



Maintenance unit

Compressed air must be dewatered and oiled.

Install a maintenance unit (pressure reducer with water separator and oiler) if required.

Connect the SKW to the plant's supply network by means of a hose.

☹ Depressurize compressed air supply lines which must be opened.

☞ Compressed air must be dewatered and oiled.

Adjust pressure to a max. value of 6 bar (87.02 PSI) (system overpressure).

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3. Functional description

This functional description is intended for the operating personnel of the equipment.

Prerequisite for this functional description is general knowledge of conveyor systems operation.

Ensure in each case that the operating personnel are sufficiently informed.

The SKW can only be operated in conjunction with a conveyor unit.

3.1. General information

The SKW has 2 elbows (virgin material intake port, regrind intake port) and an outlet pipe socket leading to the conveyor unit.

With the SKW it is possible to convey two components to a hopper loader.

The SKW works in dependence on the conveying cycles of the conveyor unit. It is only in operation when material is conveyed.

The SKW is available in 2 versions:

- Version 1
  Operation on SKW
  SKW for connection to a single conveyor unit CSE 2/5;

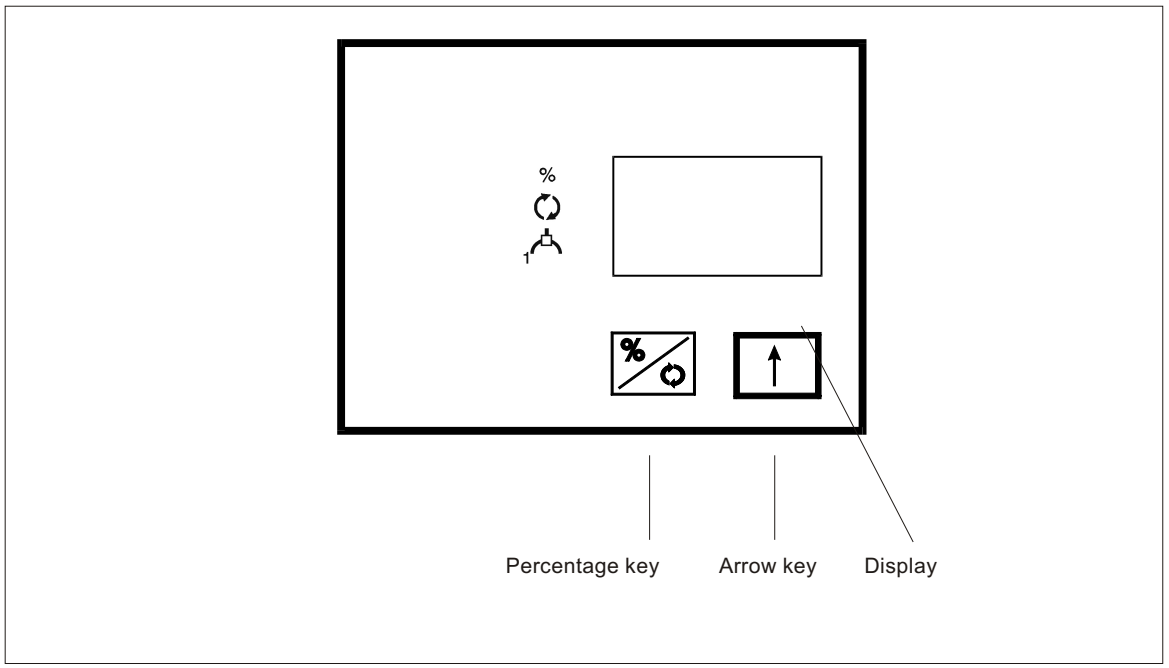
- Version 2
  Operation on the conveying control
  SKW for connection to a conveying control.

3.2. Control

3.2.1. SKW Version 1

The control unit is installed at the housing of the SKW.

The conveying ratio as well as the switching cycles are set by means of the keys on the front side of the control system.



SKW control system

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3.2.1.1. Conveying ratio

The conveying ratio between component 1 (= regrind) and component 2 (= virgin material) can be freely selected.

The control setting refers to the conveying time of component 1 (= regrind).

The conveying time of component 1 can be set from 0 to 99 % of total conveying time.

Example

Proportioning valve setting: 22 %

Conveying ratio: 22 % component 1 and 78 % component 2

Conveying ratio relates to conveying time, not to the amount of material conveyed.

3.2.1.2. Switching cycles

During each switching cycle, the SKW switches back and forth one time. The pre-set conveying ratio is not affected by this. In order to prevent strong formation of layers in the conveyed material, the number of switching cycles per conveying procedure can be freely selected. Setting takes place by entry of one cycle period. The cycle period can be set between 5 and 50 seconds. The setting is carried out in five seconds.

The cycle period may not be longer than the conveying time.

The shorter the cycle period, the higher the number of switching cycles.

The higher the number of switching cycles, the less significant is the zoning effect in the hopper loader.

Example
Conveying time: 90 seconds, cycle period = 15 seconds

Calculation of switching cycles:

$$\frac{conveying\ time}{cycle\ period} = switching\ cycles \qquad \frac{90\ s}{15\ s} = 6\ switching\ cycles$$

Cycle period must always be high enough that both virgin material and regrind are conveyed properly.

3.2.2. SKW Version 2

On the SKW housing, a terminal box is installed (optional: terminal box with 3 light-emitting diodes = LEDs for limit position monitoring).

The two green LEDs indicate the limit positions of the rotary piston. The red LED goes on in case of a disturbance.

The conveying ratio and the switching cycles are entered into the control system of the conveying control.

Observe the operating manual of the conveying control.

4. Start-up

This chapter is intended for operating personnel.

Prerequisite for this chapter is general knowledge of the operation of conveying units.

Also prerequisite for this chapter is that the functional description has been read and understood.

Ensure in each case that the operating personnel are sufficiently informed.

Check the compressed air supply (max. 6 bar system overpressure). (87.02 PSI)

Check the connections of the conveying lines.

Check the suction pipe adjustment.

The SKW can only be operated in conjunction with a conveying system.

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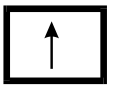
4.1. Adjusting the conveying ratio

Adjust the conveying ratio according to your specific requirements.

SKW Version 1

By means of the arrow key, set the percentage of component 1 (= regrind).



Example

Desired conveying ratio: 40 % regrind and 60 % raw material.

Press the arrow key until “40" appears on the display.

When conveying poorly flowing components, set higher values.

SKW Version 2

Set the percentage of component 1 (= regrind) by means of the control system of the conveying control.

Observe the operating manual of the conveying control.

4.2. Determining the switching cycle duration

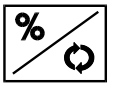
Measure the conveying time of the respective hopper.

Take out the table.

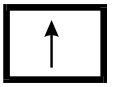
Look for the value in the column “conveying time”.

Select a number of switching cycles.

Press the percentage key.



By means of the arrow key, select the desired switching cycle.



Carry through one conveying procedure.

If you are not satisfied with the result, check the setting and correct, if necessary.

No thick layers may form in the hopper loader.

Example

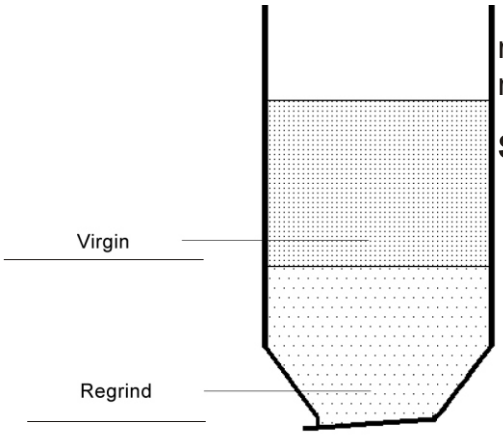
Conveying time: 50 s

Conveying ratio: 40 % regrind, 60 % virgin material

Setting options for a conveying time of 50 s:

Conveying time	Number of switching cycles at cycle period (seconds)									
(seconds)	50	45	40	35	30	25	20	15	10	5
50	1	1,1	1,3	1,4	1,7	2	2,5	3,3	5	10

a.) Setting 50 seconds = 1 switching cycle per conveying procedure



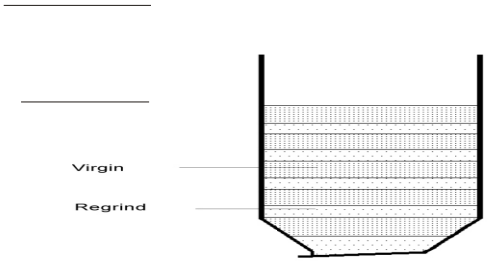
The SKW switches twice; it conveys regrind for 20 seconds and virgin material for 30 seconds.

Significant zoning.

b.) Setting 10 = 5 switching cycles per conveying procedure

The SKW switches ten times; it conveys regrind for 4 seconds and virgin material for 6 seconds.

Insignificant zoning.



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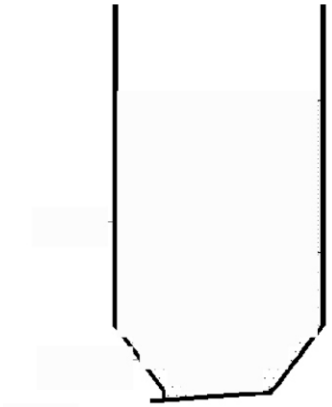
c.) Setting 5 = 10 switching cycles per conveying cycle



The SKW switches 20 times; it conveys regrind for 2 seconds and virgin material for 3 seconds. This process is repeated 10 times.

No correct conveyance possible.

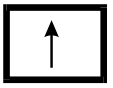
With a conveying time of 2 to 3 seconds the material cannot be conveyed properly.

4.3. Setting the switching cycles

SKW Version 1

Press the percentage key.

By means of the arrow key, set the determined switching cycle.



Check the result.

If the result is not satisfactory, correct the setting.

If there are too many switching cycles, proper conveying is not possible.

SKW Version 2

Set the determined value by means of the control system of the conveying control.

Observe the operating manual of the conveying control.

Check the result.

If the result is not satisfactory, correct the setting.

5. Maintenance

This chapter is intended for persons with skills in electrical and mechanical areas due to their training, experience and received instructions.

Personnel using the instructions in this chapter must be instructed of the regulations for the prevention of accidents, the operating conditions and safety regulations and their implementation.

Ensure in each case that the personnel are informed accordingly.

For maintenance work taking place at heights of over approx.1829 mm (6 ft), use only ladders or similar equipment and working platforms intended for this purpose. At greater heights, the proper equipment for protection against falling must be worn.

Use only suitable lifting gear which is in proper working order and load suspension devices with sufficient carrying capacity. Do not stand or work under suspended loads!

Ensure that the electric motors/switch cabinets are sufficiently protected against moisture.

Use only suitable workshop equipment.

Before starting maintenance work, appoint a supervisor.

Inform the responsible personnel before maintenance work on the system is started.

Never operate the equipment when partially dismantled.

All maintenance and repair work not described in this chapter may only be carried out by Sterlingservice personnel or authorized personnel (appointed by Sterling).

☹

Disconnect the equipment from mains supply before starting maintenance procedures to ensure that it cannot be switched on unintentionally.

Depressurize all compressed air piping of the equipment before starting maintenance work.

Please observe the maintenance intervals.

Before starting maintenance work, clean the equipment of oil, fuel or lubricants.

Ensure that materials and incidentals required for operation as well as spare parts are disposed of properly and in an environmentally sound manner.

Use only original Sterling spare parts.

Keep record of all maintenance and repair procedures.

5.1. Maintenance intervals

Daily:	Check warning signs on equipment for good legibility and completeness.
	Check the oil level in the oiler.
	Empty the water separator.
	Check operating pressure of the plant's supply network (5-6 bar (72.52-87.02 PSI) system over pressure).
Every three months:	Check the SKW for smooth operation.
Every six months:	Check all electrical and mechanical connections for secure fit.

In case of soiled material and material with a high dust content equipment should be checked monthly for smooth operation.

5.2. Checking for smooth operation

Disconnect the equipment from mains power supply to ensure that it cannot be switched on unintentionally.

In order to check for smooth operation compressed air supply to the SKW must be maintained.
Danger! Limbs may be caught in machinery!

Unscrew the plug at the solenoid valve.

Remove the hose from the hopper loader outlet port.

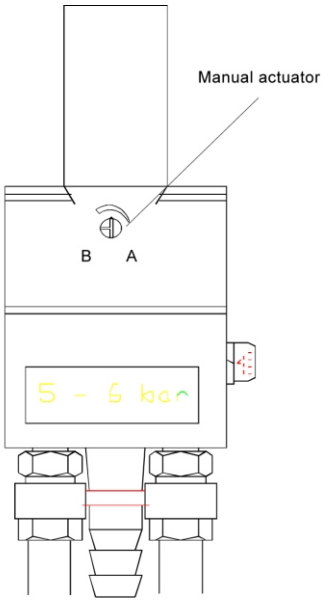
Move the manual actuator of the solenoid valve from position B to position A and back

Observe the piston through the pipe socket at the “hopper loader outlet port”.

The piston must move back and forth quickly.

Put the hose at the hopper loader outlet port back in place.

Screw the plug to the solenoid valve.



6. Technical data

Versions:	SKW 40 SKW 50 SKW 65

SKW 40

Height:	305 mm (12.01 in.)
Width:	246 mm (10.79 in.)
Depth:	235 mm (9.35 in.)
Weight:	7.5 kg (16.53 lbs.)
Compressed air supply:	5-6 bar (72.52-87.02 PSI) system overpressure
Piping system:	Æ 40 mm (1.67 in.)

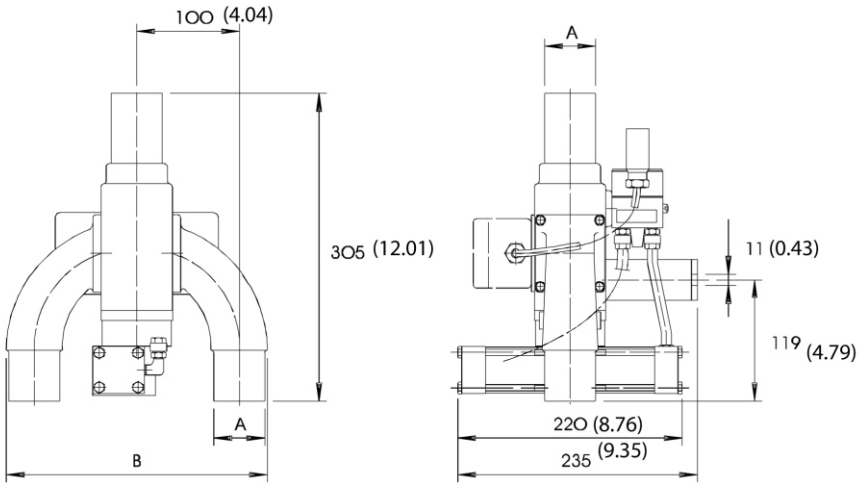
SKW 50

Height:	305 mm (12.01 in.)
Width:	256 mm (10.18 in.)
Depth:	235 mm (9.35 in.)
Weight:	7.5 kg (16.53 lbs.)
Compressed air supply:	5-6 bar (72.52-87.02 PSI) system overpressure
Piping system:	Æ 50 mm ((2.07 in.)

SKW 65

Height:	340 mm (13.49 in.)
Width:	290 mm (11.42 in.)
Depth:	245 mm (10.7 in.)
Weight:	12.5 kg (27.66 lbs.)
Compressed air supply:	5-6 bar (72.52-87.02 PSI) system overpressure
Piping system:	Æ 65 mm (0.36 in.)

6.1. Dimension sheet SKW 40/50



	ZKW 40	ZKW 50
A	40 (1.67)	50 (2.07)
B	246 (9.79)	256 (10.18)

All dimensions in mm. (in.) Specifications may be subject to alteration.

6.2. Dimension sheet SKW 65

(On next page)

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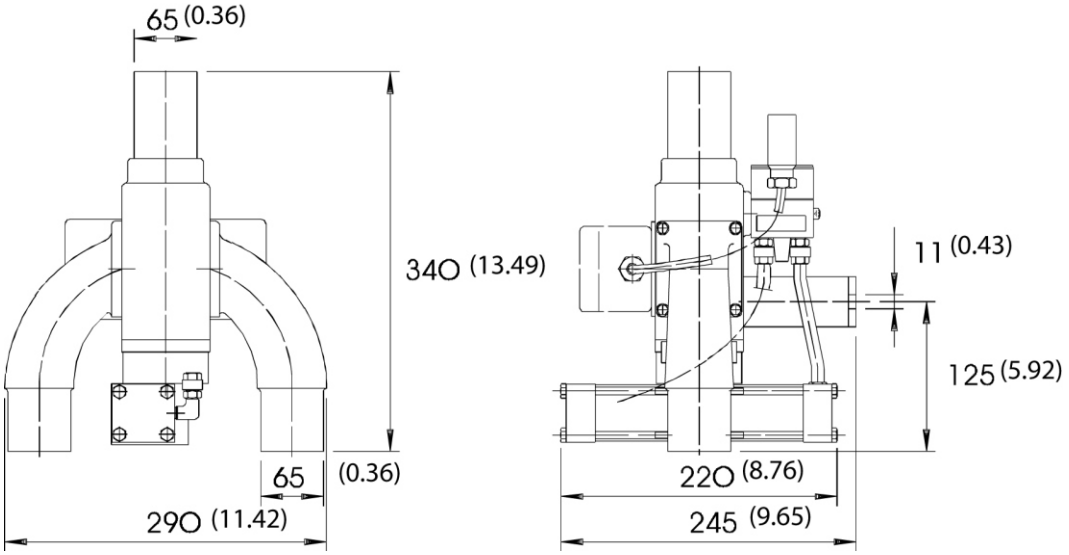

All dimensions in mm (in.). Specifications may be subject to alteration.

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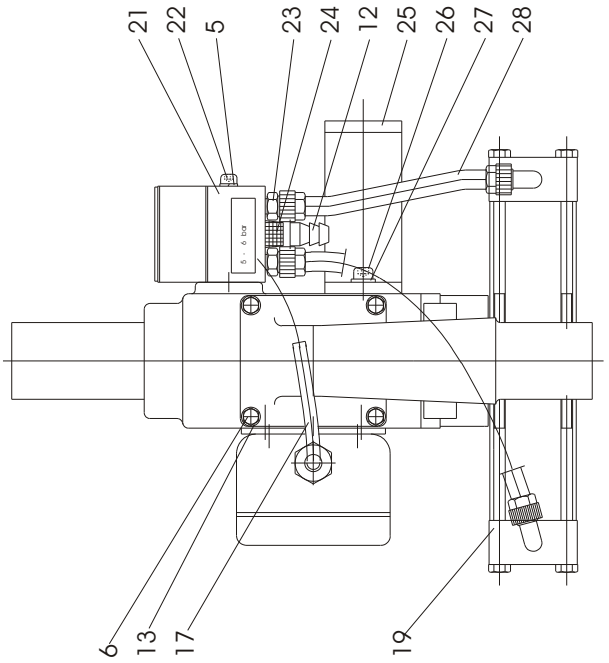
7. Appendix

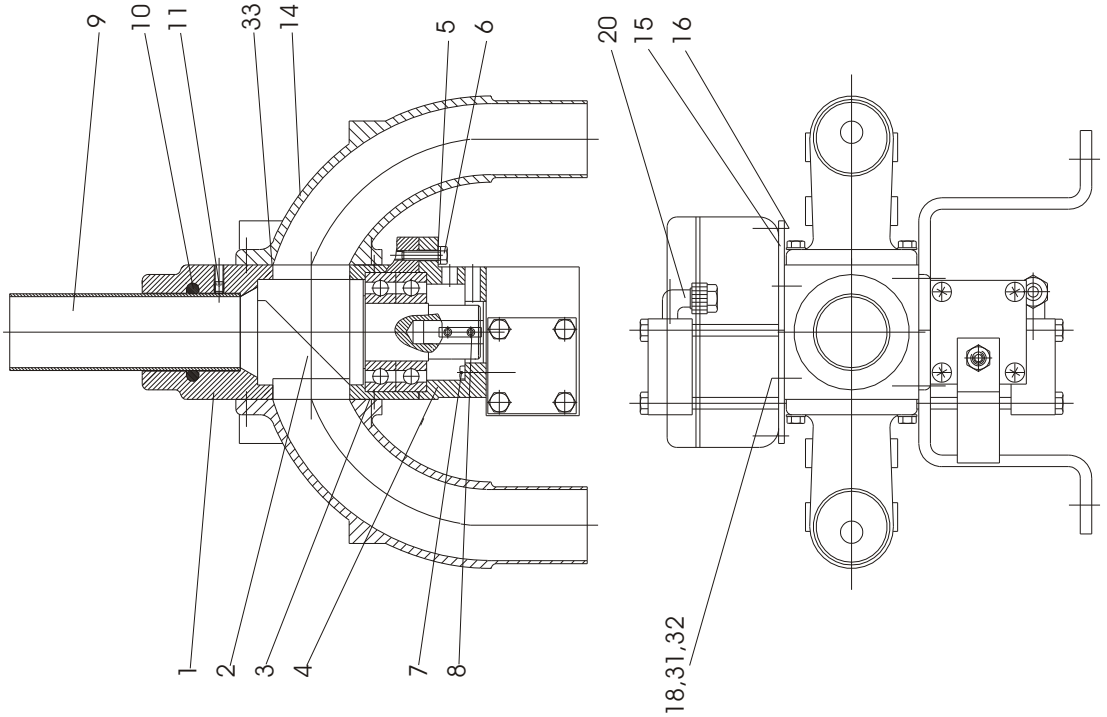
7.1. Spare parts list

This spare parts list is intended to be used only by trained personnel.

Other persons are not permitted to modify or repair the equipment.

SKW 40 (03596)





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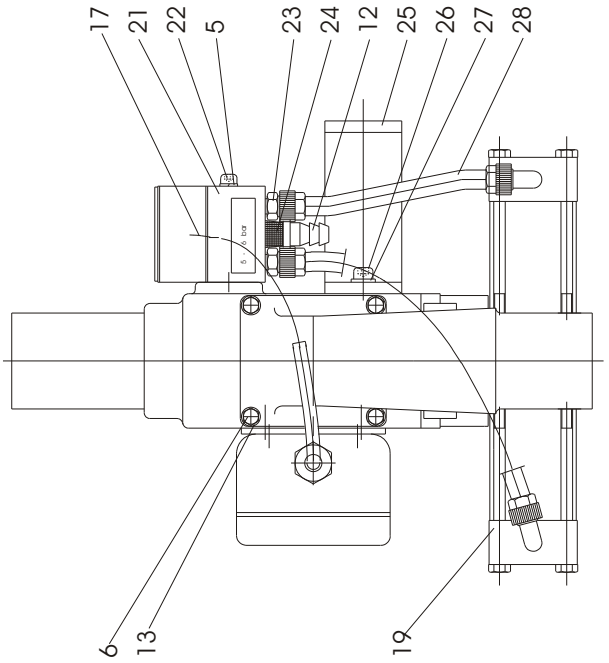
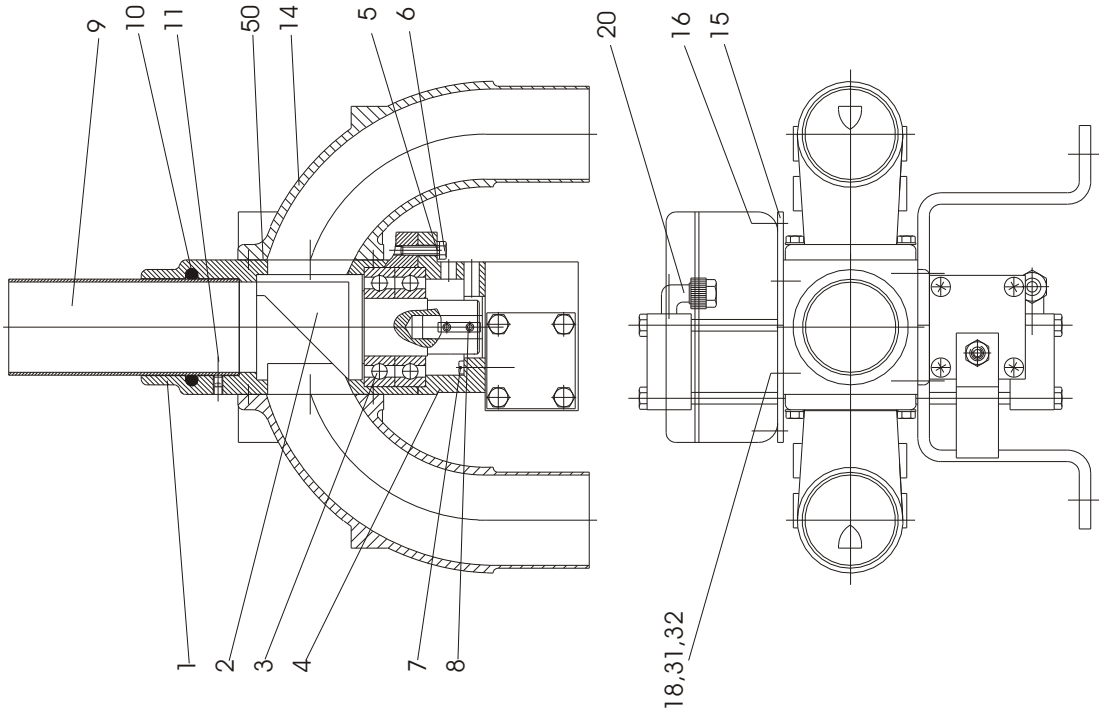
Pos.	Orderno.	Designation
0001	03546	Housing
0002	03576	Piston
0003	96366	Deep groove ball bearing
0004	03575	Bearing lid
0005	95944	Spring lock washer
0006	95842	Screw
0007	96043	Screw
0008	95840	Threaded pin
0009	97706	Pipe socket
0010	96384	Sealingring
0011	95839	Threaded pin
0012	98167	Hose nozzle
0014	03573	Bend
0015	27603	Support
0016	95841	Screw
0018	96045	Screw
0019	96373	Rotary drive
0020	98753	Coupling piece
0021	96372	Solenoid valve
0022	95985	Screw
0023	98752	Coupling piece
0024	98742	Silencer
0025	03604	Bow
0026	95844	Screw
0027	95956	Disc
0028	98750	Hose
0029	95556	Screw
0031	95948	Disc
0032	93882	Nut
0033	15475	Sealing

SKW 50 (03597)





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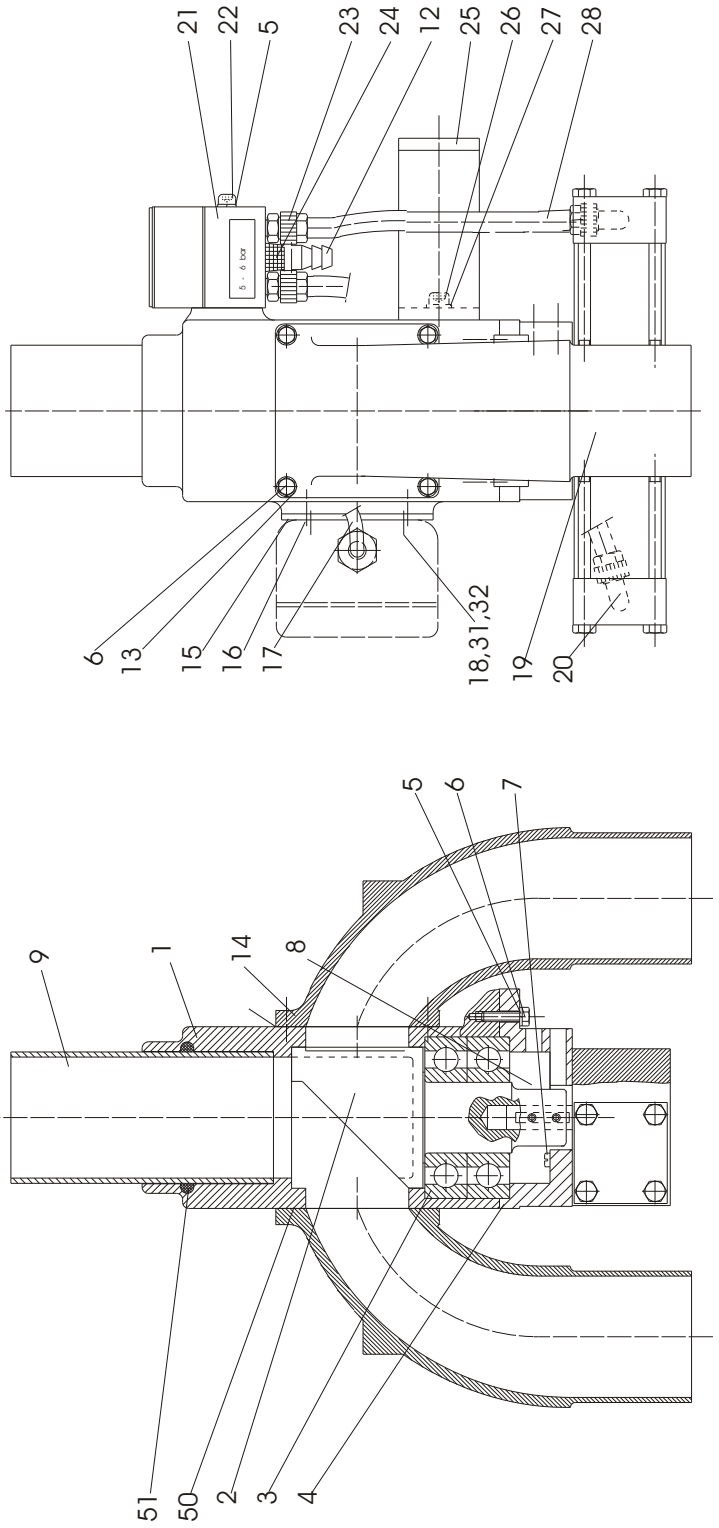
03597

Pos.	Orderno.	Designation
0001	03547	Housing
0002	03576	Piston
0003	96366	Deep groove ball bearing
0004	03575	Bearing lid
0005	95842	Screw
0007	96043	Screw
0008	95840	Threaded pin
0009	97704	Pipe socket
0010	96383	Sealingring
0011	95839	Threaded pin
0012	98167	Hose nozzle
0013	95955	Disc
0014	03574	Bend
0015	27603	Support
0016	95841	Screw
0018	96045	Screw
0019	96373	Rotary drive
0020	98753	Coupling piece
0021	96372	Solenoid valve
0022	95985	Screw
0023	98752	Coupling piece
0024	98742	Silencer
0025	03604	Bow
0026	95844	Screw
0027	95956	Disc
0028	98750	Hose
0031	95948	Disc
0032	93882	Nut
0033	15476	Sealing

SKW 65 (12446)



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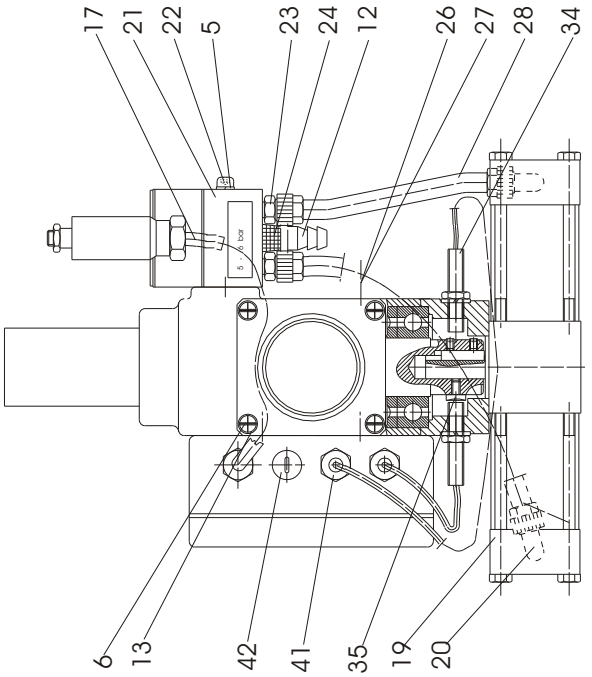
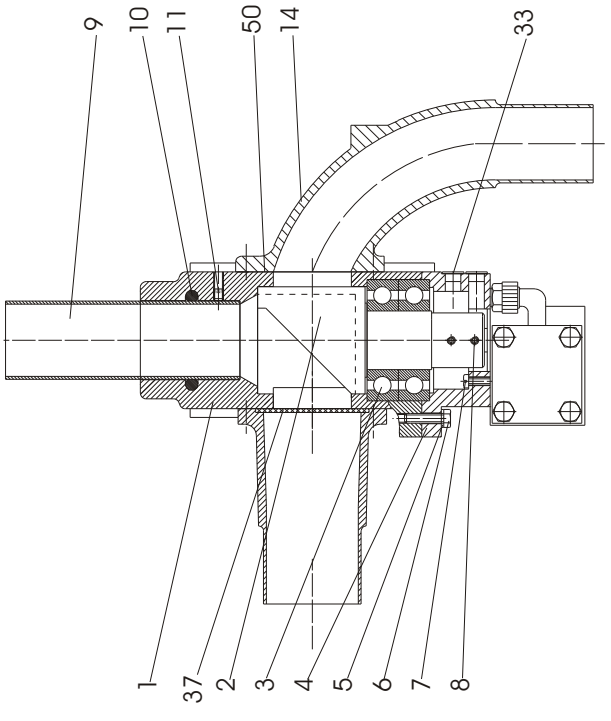
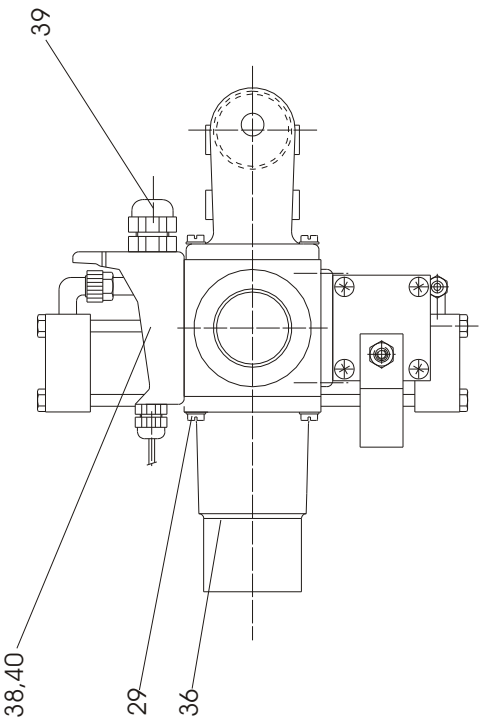
12446

Pos.	Orderno.	Designation
0001	12416	Housing
0002	12418	Piston
0003	92226	Deep groove ball bearing
0004	12417	Bearing lid
0005	95944	Spring lock washer
0006	95842	Screw
0007	96043	Screw
0008	95840	Threaded pin
0009	17208	Pipe socket
0012	98167	Hose nozzle
0013	95955	Disc
0014	12414	Bend
0015	27603	Support
0016	95841	Screw
0017	99931	Cable
0018	96045	Screw
0019	96373	Rotary drive
0020	98753	Coupling piece
0021	96372	Solenoid valve
0022	95985	Screw
0023	98752	Coupling piece
0024	98742	Silencer
0025	03604	Bow
0026	95844	Screw
0027	95956	Disc
0028	98750	Hose
0031	95948	Disc
0032	93882	Nut
0050	15477	Sealing
0051	88141	Sealing

CLV 40 (10102)







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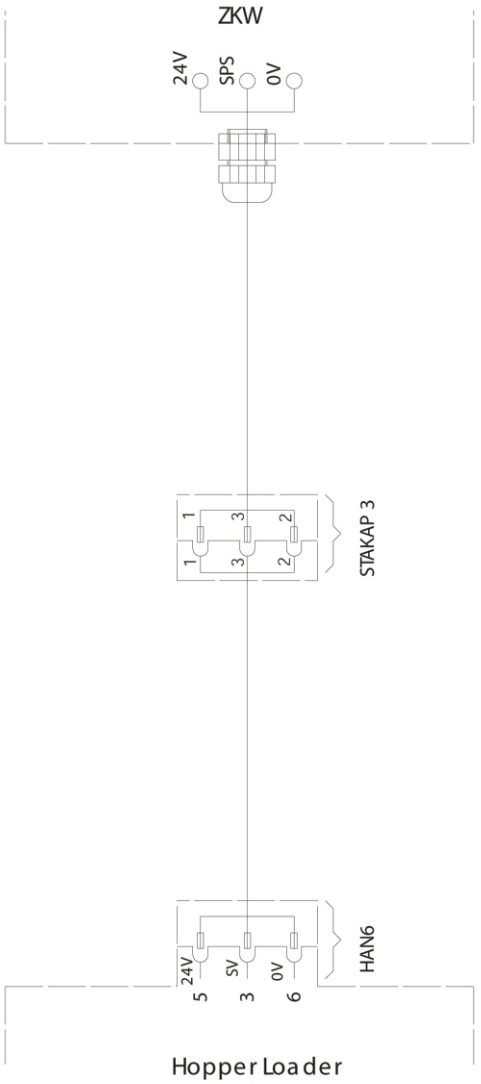
10102

Pos.	Orderno.	Designation
0001	03546	Housing
0002	09518	Piston with final switch position check
0003	96366	Deep groove ball bearing
0004	09519	Bearing lid with final switch position check
0005	95944	Spring lock washer
0006	95842	Screw
0007	96043	Screw
0008	95840	Threaded pin
0009	97706	Pipe socket
0010	96384	Sealingring
0011	95839	Threaded pin
0012	98167	Hose nozzle
0013	95957	Disc
0014	03573	Bend
0017	99931	Cable
0019	96373	Rotary drive
0020	98753	Coupling piece
0021	96372	Solenoid valve
0022	95985	Screw
0023	98752	Coupling piece
0024	98742	Silencer
0026	95844	Screw
0027	95956	Disc
0028	98750	Hose
0029	96038	Screw
0033	97763	Conical caps
0034	92477	3-wire -initiator with LED
0035	88071	Screw
0036	11503	Nozzle
0037	93228	Sieve

0038	11122	Housing
0039	99944	Coupling piece
0040	92470	SKW-MLV control card
0041	98609	Coupling piece
0042	93075	Welsh plug
0050	15475	Sealing
0051	85982	Distance bolt
0052	95946	Spring lock washer
0053	95970	Nut

Connection diagram



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Conveying time (seconds)	Number of switching cycles at cycle period (seconds)									
	50	45	40	35	30	25	20	15	10	5
5	*	*	*	*	*	*	*	*	*	1
10	*	*	*	*	*	*	*	*	1	2
15	*	*	*	*	*	*	*	1	1,5	3
20	*	*	*	*	*	*	1	1,3	2	4
25	*	*	*	*	*	1	1,3	1,7	2,5	5
30	*	*	*	*	1	1,2	1,5	2	3	6
35	*	*	*	1	1,2	1,4	1,8	2,3	3,5	7
40	*	*	1	1,1	1,3	1,6	2	2,7	4	8
45	*	1	1,1	1,3	1,5	1,8	2,3	3	4,5	9
50	1	1,1	1,3	1,4	1,7	2	2,5	3,3	5	10
55	1,1	1,2	1,4	1,6	1,8	2,2	2,8	3,7	5,5	11
60	1,2	1,3	1,5	1,7	2	2,4	3	4	6	12
65	1,3	1,4	1,6	1,9	2,2	2,6	3,3	4,3	6,5	13
70	1,4	1,5	1,8	2	2,3	2,8	3,5	4,7	7	14
75	1,5	1,7	1,9	2,1	2,5	3	3,8	5	7,5	15
80	1,6	1,8	2	2,3	2,7	3,2	4	5,3	8	16
85	1,7	1,9	2,1	2,4	2,8	3,4	4,3	5,7	8,5	17
90	1,8	2	2,3	2,6	3	3,6	4,5	6	9	18
95	1,9	2,1	2,4	2,7	3,2	3,8	4,8	6,3	9,5	19
100	2	2,2	2,5	2,9	3,3	4	5	6,7	10	20
105	2,1	2,3	2,6	3	3,5	4,2	5,3	7	10,5	21
110	2,2	2,4	2,8	3,1	3,7	4,4	5,5	7,3	11	22
115	2,3	2,6	2,9	3,3	3,8	4,6	5,8	7,7	11,5	23
120	2,4	2,7	3	3,4	4	4,8	6	8	12	24

* = Setting not permitted